

REMARKS

Claims 1-5, 8-12 and 14-18 are pending in this application. By this Amendment, claims 1, 8 and 14 are amended. No new matter is added. Reconsideration of the application is respectfully requested.

Applicants appreciate the courtesies shown to Applicants' representative by Examiner Hendrickson in the September 9, 2010 personal interview. Applicants' separate record of the substance of the interview is incorporated into the following remarks.

The Office Action, on page 2, rejects claims 1-5, 8-12 and 14-18 under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the written description requirement. The Office Action asserts that there is insufficient support for the newly claimed feature of "liquid naphthalene." As was discussed during the September 9 personal interview, the claims do not recite "liquid naphthalene." Rather, the claims, in their unamended form, recited an organic compound in a liquid state...comprising naphthalene. It is well settled in patent law that comprising is open ended. Therefore, the claims are directed to a liquid organic compound that includes naphthalene. At least coal tar is used as the organic compound as is discussed, for example, in paragraph [0034] of Applicants' disclosure, as originally filed. Coal tar is an oily material produced by dry distillation of coal, and coal tar is liquid. It is clear, therefore, that the organic compound in a liquid state is disclosed in the Applicants' disclosure. Applicants' representative discussed this with Examiner Hendrickson during the September 9 personal interview. Examiner Hendrickson indicated that the claims should be amended to include coal tar. While Applicants do not agree that such an amendment is necessary, the claims are amended as discussed with Examiner Hendrickson to obviate the rejection.

Accordingly, reconsideration and withdrawal of the rejection of the pending claims under 35 U.S.C. §112, first paragraph, are respectfully requested.

The Office Action rejects claims 1, 3, 5, 7, 8, 10, 12, 14, 16 and 18 under 35 U.S.C. §103(a) over U.S. Patent No. 3,638,399 to Walker in view of U.S. Patent No. 5,466,645 to Hayden. The rejection is respectfully traversed.

Claim 1 recites, among other features, adsorbing an organic compound onto an activated carbon by mixing the activated carbon and the organic compound in a liquid state to bring the organic compound into contact with surface pores of the activated carbon, the organic compound comprising coal tar and naphthalene; and desorbing the organic compound from the activated carbon with naphthalene advancing inside of the pores of the activated carbon by heating the organic compound and the activated carbon at a temperature higher than the boiling point of the organic compound to selectively close most of pores of the activated carbon with a diameter less than 20 Å, the temperature higher than the boiling point of the organic compound being controlled in a range of 500°C or less. Claims 8 and 14 recite similar features.

By mixing the organic compound including naphthalene with the activated carbon in a liquid state, naphthalene is distributed onto the surface of the activated carbon. As such, naphthalene is specifically distributed fairly evenly onto the surface of the pores of the activated carbon when the activated carbon is heated until an ambient temperature exceeds the boiling point of the organic compound including naphthalene. At this point, the naphthalene advances inside of the pores of the activated carbon to close the pores with a diameter of 20 Å or less. The temperature of the process is controlled based on the organic compound to control pore diameter distribution of the produced activated carbon.

Walker discloses a process for purifying acetylene-containing pyrolysis gases and regenerating activated carbon used in the purifying process (Abstract). A pyrolysis gas stream passes through a column packed with activated carbon to adsorb components of the pyrolysis gas onto the carbon (C1:L42-47). Walker discloses adsorbing the components of the

pyrolysis gas solely for removing the components from the pyrolysis gas. Walker does not disclose, and would not have rendered obvious, that an organic compound in a liquid state is adsorbed and then desorbed at a temperature higher than a boiling point of the organic compound in the manner recited in claims 1, 8 and 14.

Walker discloses that the activated carbon preferably has at least 50 percent of the pores with diameters greater than 25Å (C 2:L41-46). However, Walker fails to disclose, and would not have rendered obvious, the distribution of the pores that are closed with an organic compound after the components are adsorbed and desorbed.

Walker discloses that the activated carbon is reactivated by heating the activated carbon to temperatures of 700°C to 1,100°C (C2:L10-15). Walker actually speaks to removing naphthalene by high temperature pyrolysis. As such, in the process discussed in Walker, when material is trapped in pores of the activated carbon, the organic compound without naphthalene becomes gas and the organic compound without naphthalene is trapped in the pores of the activated carbon. In this regard, a selectivity based on the use of naphthalene to close pores with a diameter of 20 Å or less is lost in the method disclosed in Walker. Additionally, the temperature range disclosed in Walker for the completion of its process significantly exceeds the recited range of the pending claims.

Based on the above, Walker in view of Hayden would not have rendered obvious the combinations of all of the features recited in independent claims 1, 8 and 14. Further, claims 3, 5, 10, 12, 16 and 18 also would not have been rendered obvious, by Walker in view of Hayden at least for their respective dependence on claims 1, 8 and 14, as well as the for the additional features these claims recite.

Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

The Office Action rejects claims 1-5, 8-12 and 14-18 under 35 U.S.C. §103(a) over *Control of Micropores of Molecular Sieving Carbon by Impregnation of Hydrocarbons and Heat Treatment* by Nakano et al. (Nakano) in view of Hayden. This rejection is respectfully traversed.

Claims 1, 8 and 14 include the features discussed above. As discussed in Nakano, pyrolysis gas is exposed to activated carbon at a temperature of 1223K, and is at the same time adsorbed onto the activated carbon at the high temperature (Nakano, Table 1). The temperature of the pyrolysis gas well exceeds the boiling point of any coal tar and naphthalene organic compound based on the temperature during the disclosed adsorbing being 1223K. Therefore, at the temperature of 1223 K, the organic compound recited in claims 1, 8 and 14 would not be in a liquid state. Much as was discussed above with Walker, these elevated temperatures would effectively remove any organic compound including naphthalene from the activated carbon. Additionally, the disclosed temperatures in Nakano far exceed the range recited in the pending claims.

Based on the foregoing, claims 1, 8 and 14 would not have been rendered obvious by Nakano in view of Hayden. Claims 2-5, 9-12 and 15-18 also would not have rendered obvious by Walker in view of Hayden at least for their respective dependence on claims 1, 8 and 14, as well as for the additional features the claims recite. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Applicants' representative discussed the substance of the above arguments, and certain of the claim amendments presented above, with Examiner Hendrickson during the September 9 personal interview. Examiner Hendrickson referred specifically to, for example, the disclosure of Walker of activated carbon being saturated (C1:L69-70) for his broad interpretation that one of ordinary skill in the art "might have" substituted liquid state organic compounds for the clearly gaseous state organic compound disclosed in that reference.

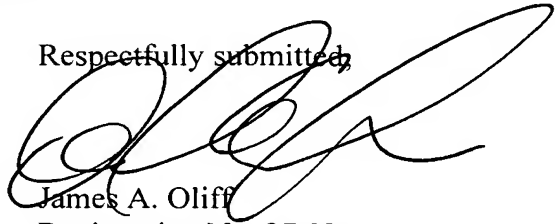
Applicants believe that this requires an overly broad interpretation of totality of what the Walker reference teaches particularly with regard to the temperatures at which the method of Walker operates (this is also the case with the temperature at which the method of Nakano operates). This conclusion notwithstanding, however, Applicants have chosen to further amend the pending claims in a manner that clearly distinguishes the subject matter of the pending claims over the asserted combinations of references.

Applicants' representative discussed with Examiner Hendrickson the Examiner's ongoing concerns regarding the spelling of one of the inventor's names. Applicants' representative discussed with Examiner Hendrickson that there are certain rules regarding alphabetic notations of a name in Japanese. One such rule of notation provides for a translation of Tokio Oi's last name to be spelled as either "Ooi" or "Oi," the latter being more appropriate in certain official documents such as, for example, passports. After executing the initial oath, the inventor was reminded of this rule and indicated the more formal spelling should be used. Because either spelling is interchangeable with the other, there was clearly no deceptive intent. A Substitute Declaration, and Statement of Inventor, will be filed to obviate any further concern regarding the spelling of the inventor's name.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-5, 8-12 and 14-18 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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